

# GEOMETRY



## SPRING 2012

**Mrs. Sharkey**

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#### MISSION STATEMENT:

Northern Vance High School strives to prepare 21st Century future-ready students to be innovative, creative, self-motivated, and globally competitive who will pursue a post-secondary education and who will become life-long learners.

#### VISION STATEMENT:

**R.E.A.L.** Raise Everyone's Achievement Level

*Practice*  
**Geometry Midterm Exam 1-5, and Similarity**

**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

1. Find a counterexample to show that the conjecture is false.

Conjecture: Any number that is divisible by 4 is also divisible by 8.

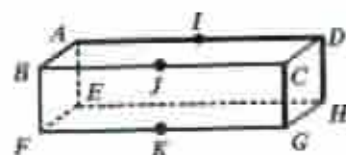
- a. 24                      b. 40                      c. 12                      d. 26

2. Find a counterexample to show that the conjecture is false.

Conjecture: The product of two positive numbers is greater than the sum of the two numbers.

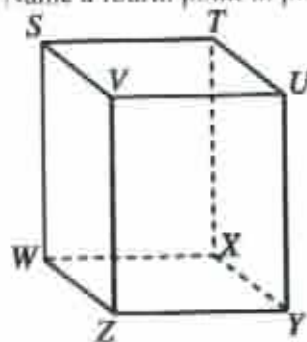
- a. 3 and 5  
b. 2 and 2  
c. A counterexample exists, but it is not shown above.  
d. There is no counterexample. The conjecture is true.

3. Are points  $B$ ,  $J$ , and  $C$  collinear or noncollinear?



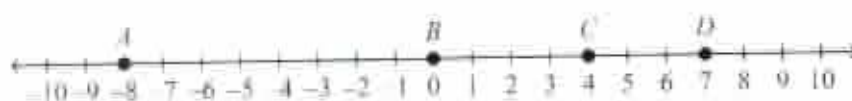
- a. collinear                      b. noncollinear                      c. impossible to tell

4. Name a fourth point in plane  $TUV$ .



- a.  $Y$                       b.  $Z$                       c.  $W$                       d.  $X$

5. Find  $AC$ .



- a. 14                      b. 15                      c. 12                      d. 4

6. If  $EF = 2x - 12$ ,  $FG = 3x - 15$ , and  $EG = 23$ , find the values of  $x$ ,  $EF$ , and  $FG$ . The drawing is not to scale.

Goal 2.02

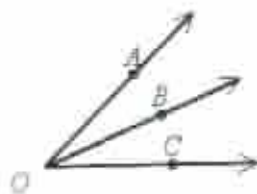


- a.  $x = 10$ ,  $EF = 8$ ,  $FG = 15$   
b.  $x = 3$ ,  $EF = -6$ ,  $FG = -6$

- c.  $x = 10$ ,  $EF = 32$ ,  $FG = 45$   
d.  $x = 3$ ,  $EF = 8$ ,  $FG = 15$

7. If  $m\angle BOC = 27$  and  $m\angle AOC = 47$ , then what is the measure of  $\angle AOB$ ? The diagram is not to scale.

2.02

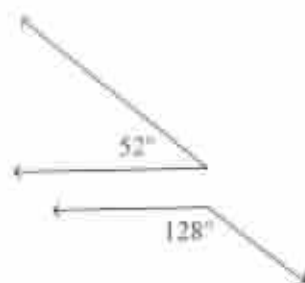


- a. 74                      b. 40                      c. 20                      d. 54

8. Supplementary angles are two angles whose measures have sum \_\_\_\_\_.  
Complementary angles are two angles whose measures have sum \_\_\_\_\_.

- a. 90; 180                      b. 90; 45                      c. 180; 360                      d. 180; 90

9. How are the two angles related?



Drawing not to scale

- a. vertical                      c. complementary  
b. supplementary                      d. adjacent

10.  $\angle DFG$  and  $\angle JKL$  are complementary angles.  $m\angle DFG = x + 5$ , and  $m\angle JKL = x - 9$ . Find the measure of each angle.

- a.  $\angle DFG = 47$ ,  $\angle JKL = 53$   
b.  $\angle DFG = 47$ ,  $\angle JKL = 43$

- c.  $\angle DFG = 52$ ,  $\angle JKL = 48$   
d.  $\angle DFG = 52$ ,  $\angle JKL = 38$

11.  $\angle 1$  and  $\angle 2$  are supplementary angles.  $m\angle 1 = x - 39$ , and  $m\angle 2 = x + 61$ . Find the measure of each angle.

- a.  $\angle 1 = 79$ ,  $\angle 2 = 101$   
b.  $\angle 1 = 40$ ,  $\angle 2 = 140$

- c.  $\angle 1 = 40$ ,  $\angle 2 = 150$   
d.  $\angle 1 = 79$ ,  $\angle 2 = 111$

12. If  $\angle A$  and  $\angle B$  are supplementary angles and  $m\angle A = 4m\angle B$ , find  $m\angle A$  and  $m\angle B$ .

- a. 72, 18

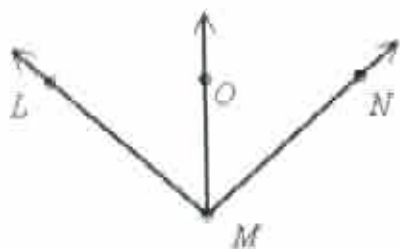
- b. 144, 36

- c. 18, 72

- d. 36, 144

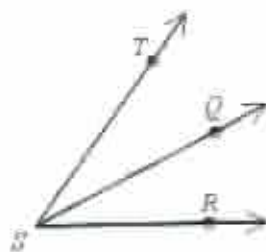
2.02

13.  $\overrightarrow{MO}$  bisects  $\angle LMN$ ,  $m\angle LMO = 8x - 23$ , and  $m\angle NMO = 2x + 37$ . Solve for  $x$  and find  $m\angle LMN$ . The diagram is not to scale.



- a.  $x = 9$ ,  $m\angle LMN = 98$   
 b.  $x = 9$ ,  $m\angle LMN = 49$   
 c.  $x = 10$ ,  $m\angle LMN = 114$   
 d.  $x = 10$ ,  $m\angle LMN = 57$

14.  $\overrightarrow{SQ}$  bisects  $\angle RST$ , and  $m\angle RSQ = 3x - 9$ . Write an expression for  $\angle RST$ . The diagram is not to scale.



- a.  $6x - 9$   
 b.  $6x - 18$   
 c.  $3x - 9$   
 d.  $1.5x - 4.5$

1.02

15. Find the distance between points  $P(8, 2)$  and  $Q(3, 8)$  to the nearest tenth.

- a. 11  
 b. 7.8  
 c. 61  
 d. 14.9

1.02

16. The Frostburg-Truth bus travels from Frostburg Mall through the City Center to Sojourner Truth Park. The mall is 3 miles west and 2 miles south of the City Center. Truth Park is 4 miles east and 5 miles north of the Center. How far is it from Truth Park to the Mall to the nearest tenth of a mile?

- a. 9.9 miles  
 b. 3.6 miles  
 c. 3.2 miles  
 d. 6.4 miles

1.02

17. Find the coordinates of the midpoint of the segment whose endpoints are  $H(8, 2)$  and  $K(6, 10)$ .

- a. (7, 6)  
 b. (1, 4)  
 c. (14, 12)  
 d. (2, 8)

1.02

18.  $M$  is the midpoint of  $\overline{CF}$  for the points  $C(3, 4)$  and  $F(9, 8)$ . Find  $MF$ .

- a.  $\sqrt{13}$   
 b.  $2\sqrt{13}$   
 c. 26  
 d. 13

2.01

19. Write this statement as a conditional in *if-then* form:

All triangles have three sides.

- a. If a triangle has three sides, then all triangles have three sides.  
 b. If a figure has three sides, then it is not a triangle.  
 c. If a figure is a triangle, then all triangles have three sides.  
 d. If a figure is a triangle, then it has three sides.

- 2.01 20. Another name for an *if-then* statement is a \_\_\_\_\_. Every conditional has two parts. The part following *if* is the \_\_\_\_\_ and the part following *then* is the \_\_\_\_\_.  
 a. conditional; conclusion; hypothesis c. conditional; hypothesis; conclusion  
 b. hypothesis; conclusion; conditional d. hypothesis; conditional; conclusion
- 2.01 21. What is the converse and the truth value of the converse of the following conditional?  
 If an angle is a right angle, then its measure is 90.  
 a. If an angle is not a right angle, then its measure is 90.  
 False  
 b. If an angle is not a right angle, then its measure is not 90.  
 True  
 c. If an angle has measure 90, then it is a right angle.  
 False  
 d. If an angle has measure 90, then it is a right angle.  
 True
- 2.01 22. Which conditional has the same truth value as its converse?  
 a. If  $x = 7$ , then  $|x| = 7$ .  
 b. If a figure is a square, then it has four sides.  
 c. If  $x - 17 = 4$ , then  $x = 21$ .  
 d. If an angle has measure 80, then it is acute.
- 2.01 23. For the following true conditional statement, write the converse. If the converse is also true, combine the statements as a biconditional.  
 If  $x = 3$ , then  $x^2 = 9$ .  
 a. If  $x^2 = 9$ , then  $x = 3$ . True;  $x^2 = 9$  if and only if  $x = 3$ .  
 b. If  $x^2 = 3$ , then  $x = 9$ . False  
 c. If  $x^2 = 9$ , then  $x = 3$ . True;  $x = 3$  if and only if  $x^2 = 9$ .  
 d. If  $x^2 = 9$ , then  $x = 3$ . False
- 2.01 24. When a conditional and its converse are true, you can combine them as a true \_\_\_\_\_.  
 a. counterexample c. unconditional  
 b. biconditional d. hypothesis
- 2.01 25. Use the Law of Detachment to draw a conclusion from the two given statements.  
 If two angles are congruent, then they have equal measures.  
 $\angle P$  and  $\angle Q$  are congruent.  
 a.  $m\angle P + m\angle Q = 90$  c.  $\angle P$  is the complement of  $\angle Q$ .  
 b.  $m\angle P = m\angle Q$  d.  $m\angle P \neq m\angle Q$
- 2.01 26. Use the Law of Detachment to draw a conclusion from the two given statements. If not possible, write *not possible*.  
 I can go to the concert if I can afford to buy a ticket.  
 I can go to the concert.  
 a. I can afford to buy a ticket.  
 b. I cannot afford to buy the ticket.  
 c. If I can go to the concert, I can afford the ticket.  
 d. not possible

2.01

27. Which statement is the Law of Detachment?

- a. If  $p \rightarrow q$  is a true statement and  $q$  is true, then  $p$  is true.
- b. If  $p \rightarrow q$  is a true statement and  $q$  is true, then  $q \rightarrow p$  is true.
- c. If  $p \rightarrow q$  and  $q \rightarrow r$  are true, then  $p \rightarrow r$  is a true statement.
- d. If  $p \rightarrow q$  is a true statement and  $p$  is true, then  $q$  is true.

2.01

28. Use the Law of Syllogism to draw a conclusion from the two given statements.

If a number is a multiple of 64, then it is a multiple of 8.

If a number is a multiple of 8, then it is a multiple of 2.

- a. If a number is a multiple of 64, then it is a multiple of 2.
- b. The number is a multiple of 2.
- c. The number is a multiple of 8.
- d. If a number is not a multiple of 2, then the number is not a multiple of 64.

2.01

29. Use the Law of Detachment and the Law of Syllogism to draw a conclusion from the three given statements.

If an elephant weighs more than 2,000 pounds, then it weighs more than Jill's car.

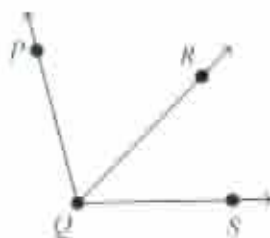
If something weighs more than Jill's car, then it is too heavy for the bridge.

Smiley the Elephant weighs 2,150 pounds.

- a. Smiley is too heavy for the bridge.
- b. Smiley weighs more than Jill's car.
- c. If Smiley weighs more than 2000 pounds, then Smiley is too heavy for the bridge.
- d. If Smiley weighs more than Jill's car, then Smiley is too heavy for the bridge.

**Fill in each missing reason.**

2.01

30. **Given:**  $m\angle PQR = x - 5$ ,  $m\angle SQR = x - 11$ , and  $m\angle PQS = 100$ .Find  $x$ .

Drawing not to scale

$$m\angle PQR + m\angle SQR = m\angle PQS$$

$$x - 5 + x - 11 = 100$$

$$2x - 16 = 100$$

$$2x = 116$$

$$x = 58$$

a. \_\_\_\_\_

b. Substitution Property

c. Simplify

d. \_\_\_\_\_

e. Division Property of Equality

- a. Angle Addition Postulate; Subtraction Property of Equality
- b. Protractor Postulate; Addition Property of Equality
- c. Angle Addition Postulate; Addition Property of Equality
- d. Protractor Postulate; Subtraction Property of Equality



- 2.01 31. Name the Property of Congruence that justifies the statement:  
If  $\overline{XY} \cong \overline{WX}$ , then  $\overline{WX} \cong \overline{XY}$ .
- a. Symmetric Property  
b. Transitive Property  
c. Reflexive Property  
d. none of these

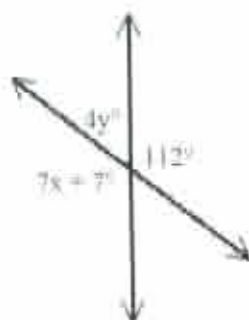
- 2.01 32. Name the Property of Congruence that justifies the statement:  
If  $\angle A \cong \angle B$  and  $\angle B \cong \angle C$ , then  $\angle A \cong \angle C$ .
- a. Transitive Property  
b. Symmetric Property  
c. Reflexive Property  
d. none of these

Use the given property to complete the statement.

- 2.01 33. Transitive Property of Congruence  
If  $\overline{CD} \cong \overline{EF}$  and  $\overline{EF} \cong \overline{GH}$ , then \_\_\_\_\_.
- a.  $\overline{EF} \cong \overline{GH}$   
b.  $\overline{EF} \cong \overline{EF}$   
c.  $\overline{CD} \cong \overline{GH}$   
d.  $\overline{CD} \cong \overline{EF}$

- 2.01 34.  $\overline{BD}$  bisects  $\angle ABC$ .  $m\angle ABC = 7x$ ,  $m\angle ABD = 3x + 25$ . Find  $m\angle DBC$ .
- a. 50  
b. 125  
c. 75  
d. 175

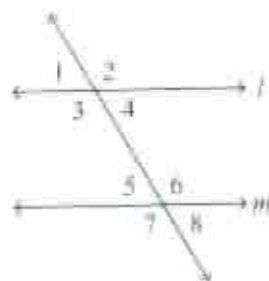
- 2.02 35. Find the values of  $x$  and  $y$ .



Drawing not to scale

- a.  $x = 15, y = 17$   
b.  $x = 112, y = 68$   
c.  $x = 68, y = 112$   
d.  $x = 17, y = 15$

- 2.02 36. Find the value of the variable if  $m \parallel l$ ,  $m\angle 1 = 2x + 44$  and  $m\angle 5 = 5x + 38$ . The diagram is not to scale.



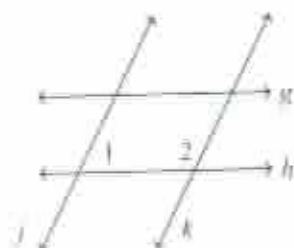
- a. 1  
b. 2  
c. 3  
d. 2

2.02

37. Complete the statement. If a transversal intersects two parallel lines, then \_\_\_\_\_ angles are supplementary.
- acute
  - alternate interior
  - same-side interior
  - corresponding

2.02

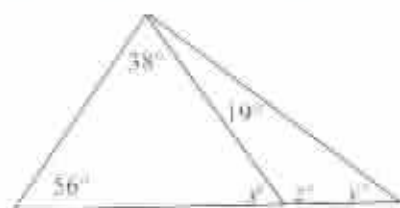
38. Which lines, if any, can you conclude are parallel given that  $m\angle 1 + m\angle 2 = 180$ ? Justify your conclusion with a theorem or postulate.



- $j \parallel k$ , by the Converse of the Same-Side Interior Angles Theorem
- $j \parallel k$ , by the Converse of the Alternate Interior Angles Theorem
- $g \parallel h$ , by the Converse of the Alternate Interior Angles Theorem
- $g \parallel h$ , by the Converse of the Same-Side Interior Angles Theorem

2.03

39. Find the values of  $x$ ,  $y$ , and  $z$ . The diagram is not to scale.



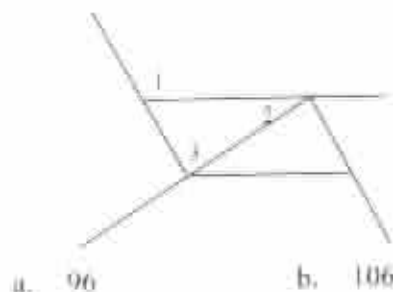
- $x = 86$ ,  $y = 94$ ,  $z = 67$
- $x = 67$ ,  $y = 86$ ,  $z = 94$
- $x = 67$ ,  $y = 94$ ,  $z = 86$
- $x = 86$ ,  $y = 67$ ,  $z = 94$

2.03

40. The triangular playground has angles whose measures are in the ratio 8 : 3 : 9. What is the measure of the smallest angle?
- 27
  - 3
  - 10
  - 30

2.03

41. The folding chair has different settings that change the angles formed by its parts. Suppose  $m\angle 2$  is 26 and  $m\angle 3$  is 70. Find  $m\angle 1$ . The diagram is not to scale.



- 96
- 106
- 116
- 86



203

42. How many sides does a regular polygon have if each exterior angle measures  $20^\circ$ ?
- a. 17 sides      b. 20 sides      c. 21 sides      d. 18 sides

203

43. Find the missing angle measures. The diagram is not to scale.



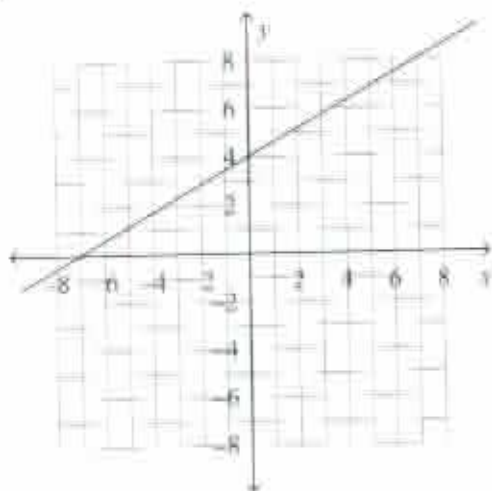
- a.  $x = 124, y = 125$   
b.  $x = 56, y = 114$

- c.  $x = 114, y = 56$   
d.  $x = 56, y = 124$

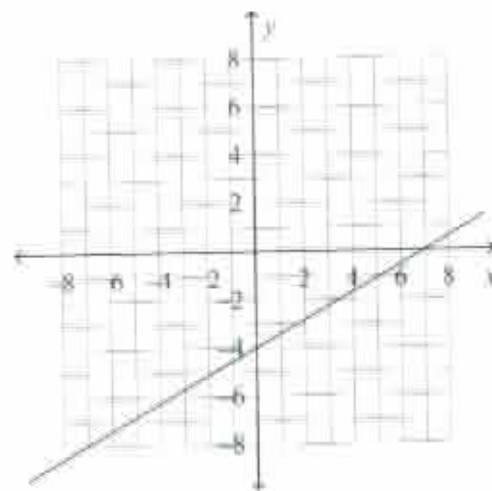
202

44. Graph  $-4x + 7y = -28$ .

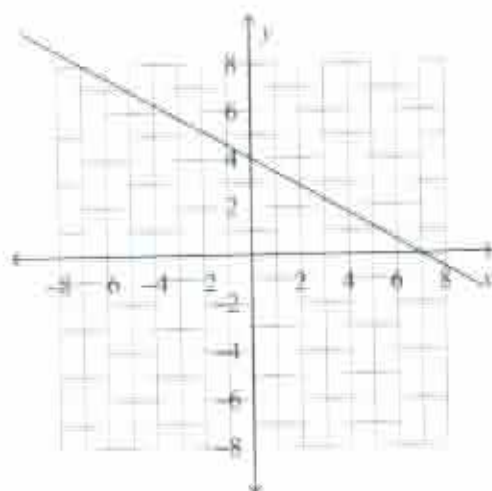
a.



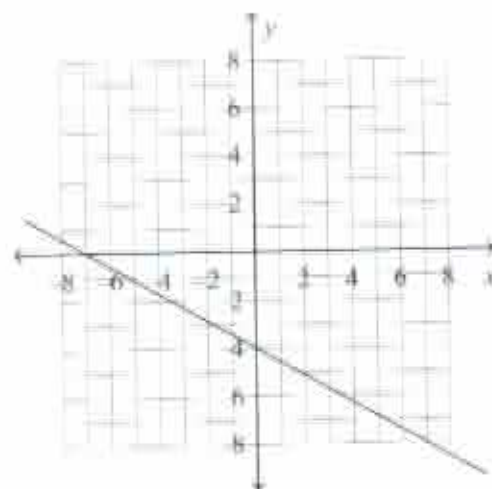
c.



b.



d.



45. Write an equation for the line perpendicular to  $y = 2x - 5$  that contains  $(-9, 6)$ .

2.03

a.  $y - 6 = 2(x + 9)$

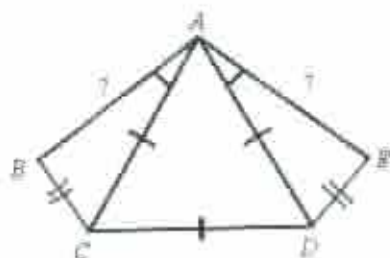
c.  $y - 9 = -\frac{1}{2}(x + 6)$

b.  $x - 6 = 2(y + 9)$

d.  $y - 6 = -\frac{1}{2}(x + 9)$

46. State whether  $\triangle ABC$  and  $\triangle AED$  are congruent. Justify your answer.

2.03



a. yes, by either SSS or SAS

b. yes, by SSS only

c. yes, by SAS only

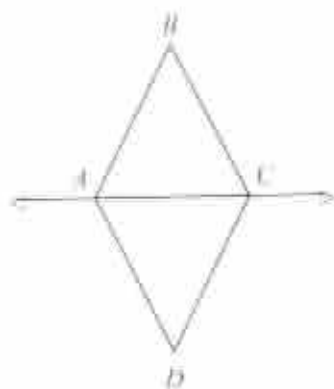
d. No; there is not enough information to conclude that the triangles are congruent.

47. What is the missing reason in the two-column proof?

2.03

**Given:**  $\overrightarrow{AC}$  bisects  $\angle DAB$  and  $\overrightarrow{CA}$  bisects  $\angle DCB$

**Prove:**  $\triangle DAC \cong \triangle BAC$



Statements

1.  $\overrightarrow{AC}$  bisects  $\angle DAB$

2.  $\angle DAC \cong \angle BAC$

3.  $\overline{AC} \cong \overline{AC}$

4.  $\overrightarrow{CA}$  bisects  $\angle DCB$

5.  $\angle DAC \cong \angle BCA$

6.  $\triangle DAC \cong \triangle BAC$

Reasons

1. Given

2. Definition of angle bisector

3. Reflexive property

4. Given

5. Definition of angle bisector

6. ?

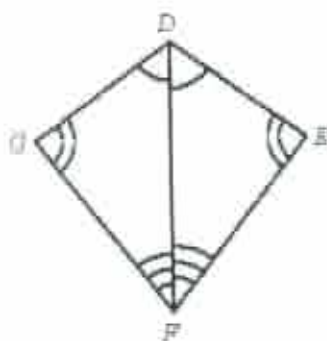
a. ASA Postulate

b. SSS Postulate

c. SAS Postulate

d. AAS Theorem

48. From the information in the diagram, can you prove  $\triangle FDG \cong \triangle FDB$ ? Explain.



- a. yes, by ASA  
b. yes, by AAA  
c. yes, by SAS  
d. no

49. Based on the given information, what can you conclude, and why?

**Given:**  $\angle H \cong \angle L$ ,  $\overline{HJ} \cong \overline{JL}$



- a.  $\triangle HJL \cong \triangle KJL$  by ASA  
b.  $\triangle HJL \cong \triangle KJL$  by SAS  
c.  $\triangle HJL \cong \triangle KJL$  by ASA  
d.  $\triangle HJL \cong \triangle KJL$  by SAS

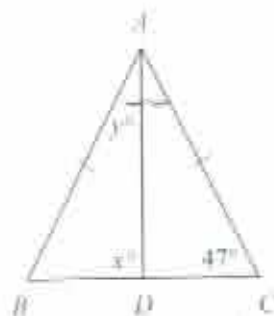
- 2.03 50. Supply the reasons missing from the proof shown below.  
**Given:**  $\overline{AB} \cong \overline{AC}$ ,  $\angle BAD \cong \angle CAD$   
**Prove:**  $\overline{AD}$  bisects  $\overline{BC}$



Statements	Reasons
1. $\overline{AB} \cong \overline{AC}$	1. Given
2. $\angle BAD \cong \angle CAD$	2. Given
3. $\overline{AD} \cong \overline{AD}$	3. Reflexive Property
4. $\triangle BAD \cong \triangle CAD$	4. <u>?</u>
5. $\overline{BD} \cong \overline{CD}$	5. <u>?</u>
6. $\overline{AD}$ bisects $\overline{BC}$	6. Def. of segment bisector

- a. ASA; CPCTC  
b. SAS; Reflexive Property  
c. SSS; Reflexive Property  
d. SAS; CPCTC

- 2.03 51. Find the values of  $x$  and  $y$ .

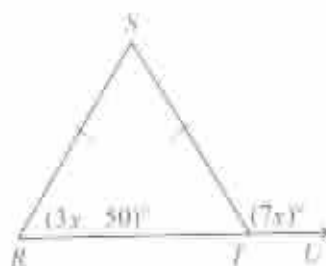


Drawing not to scale

- a.  $x = 90$ ,  $y = 47$   
b.  $x = 43$ ,  $y = 47$   
c.  $x = 47$ ,  $y = 43$   
d.  $x = 90$ ,  $y = 43$

2.03

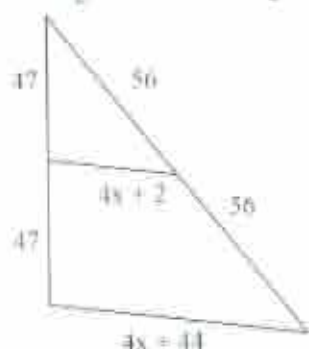
52. Find the value of  $x$ . The diagram is not to scale.



- a.  $x = 23$       b.  $x = 40$       c.  $x = 13$       d. none of these

2.03

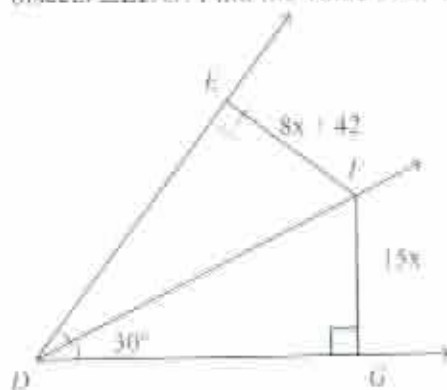
53. Find the length of the midsegment. The diagram is not to scale.



- a. 24      b. 0      c. 42      d. 84

2.03

54.  $\overline{DF}$  bisects  $\angle EDG$ . Find the value of  $x$ . The diagram is not to scale.



- a.  $\frac{23}{42}$       b. 90      c. 30      d. 6

55. Which statement can you conclude is true from the given information?

Given:  $\overline{AB}$  is the perpendicular bisector of  $\overline{IK}$ .

b.  $\angle A$  is a right angle
$$e_{\nu} \quad H \equiv JK$$

ii.  $A$  is the midpoint of  $\overline{IK}$ .

56. Find the center of the circle that you can circumscribe about the triangle.


$$W_{\text{eff}} = (1, \frac{1}{2})$$
$$c. \quad (-3, \frac{1}{2})$$
$$d_i \quad (i=1, 2)$$

57. Where can the bisectors of the angles of an obtuse triangle intersect?

1. inside the triangle

II, on the triangle

(II) outside the triangle

III. I only

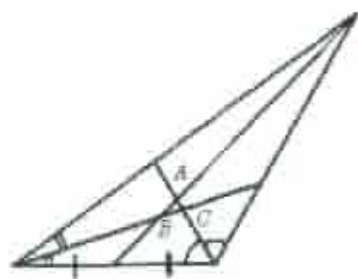
b. III only

e. I or III only

d. i, ii, or iii



58. Name the point of concurrency of the angle bisectors.



- a.  $A$                       b.  $B$                       c.  $C$                       d. not shown

59. For a triangle, list the respective names of the points of concurrency of

- perpendicular bisectors of the sides
- bisectors of the angles
- medians
- lines containing the altitudes.

- |              |                 |                 |              |
|--------------|-----------------|-----------------|--------------|
| a. incenter  | b. circumcenter | c. circumcenter | d. incenter  |
| circumcenter | incenter        | incenter        | circumcenter |
| centroid     | centroid        | orthocenter     | orthocenter  |
| orthocenter  | orthocenter     | centroid        | centroid     |

60. What is the negation of this statement?

Miguel's team won the game.

- a. It was not Miguel's team that won the game.
- b. Miguel's team lost the game.
- c. Miguel's team did not win the game.
- d. Miguel's team did not play the game.

61. What is the inverse of this statement?

If he speaks Arabic, he can act as the interpreter.

- a. If he does not speak Arabic, he can act as the interpreter.
- b. If he speaks Arabic, he can't act as the interpreter.
- c. If he can act as the interpreter, then he does not speak Arabic.
- d. If he does not speak Arabic, he can't act as the interpreter.

62. Which three lengths can NOT be the lengths of the sides of a triangle?

- |                     |                    |
|---------------------|--------------------|
| a. 23 m, 17 m, 14 m | c. 5 m, 7 m, 8 m   |
| b. 11 m, 11 m, 12 m | d. 21 m, 6 m, 10 m |

63.  $m\angle A = 9x - 7$ ,  $m\angle B = 7x - 9$ , and  $m\angle C = 28 - 2x$ . List the sides of  $\triangle ABC$  in order from shortest to longest.

- |  |  |  |  |
|--|--|--|--|
| a. $\overline{AB}$ ; $\overline{AC}$ ; $\overline{BC}$ | b. $\overline{BC}$ ; $\overline{AB}$ ; $\overline{AC}$ | c. $\overline{AC}$ ; $\overline{AB}$ ; $\overline{BC}$ | d. $\overline{AB}$ ; $\overline{BC}$ ; $\overline{AC}$ |
|--|--|--|--|

64. The Sears Tower in Chicago is 1450 feet high. A model of the tower is 24 inches tall. What is the ratio of the height of the model to the height of the actual Sears Tower?

- |            |            |             |             |
|------------|------------|-------------|-------------|
| a. 1 : 725 | b. 725 : 1 | c. 12 : 725 | d. 725 : 12 |
|------------|------------|-------------|-------------|

1.02

65. If  $\frac{g}{h} = \frac{6}{5}$ , which equation must be true?

- a.  $5h = 6g$       b.  $\frac{h}{g} = \frac{5}{6}$       c.  $\frac{h}{6} = \frac{g}{5}$       d.  $gh = 6 \times 5$

1.02

66. If  $\frac{x+3}{3} = \frac{y+2}{2}$ , then  $\frac{x}{3} =$  \_\_\_\_\_

- a.  $y+1$       b.  $\frac{y}{3}$       c.  $\frac{y}{2}$       d.  $y-1$

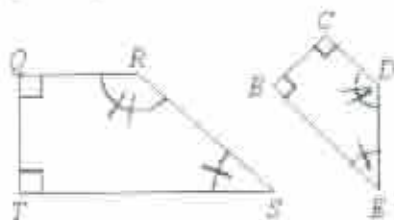
Solve the proportion.

1.02

67.  $\frac{6}{a} = \frac{18}{27}$ 

- a. 54      b. 81      c. 9      d. 18

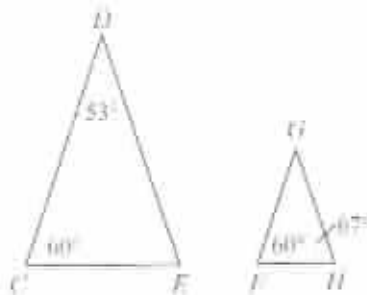
2.03

68. Figure  $TQRS \sim BCDE$ . Name a pair of corresponding sides?

- a.  $\overline{TQ}$  and  $\overline{BE}$       b.  $\overline{TS}$  and  $\overline{CD}$       c.  $\overline{RS}$  and  $\overline{BC}$       d.  $\overline{QR}$  and  $\overline{CD}$

2.03

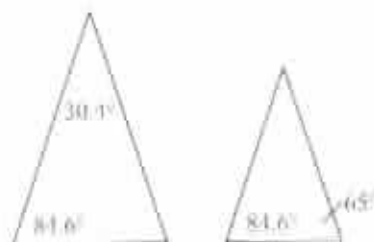
69. Write a similarity statement for the triangles.



- a.  $\triangle CDE \sim \triangle FHG$       c.  $\triangle CDE \sim \triangle FGH$   
 b.  $\triangle CED \sim \triangle FGH$       d.  $\triangle EDC \sim \triangle FGH$

70. Are the triangles similar? If so, explain why.

2.03

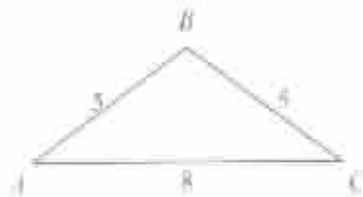


- a. yes, by SAS      b. yes, by SSS      c. yes, by AA      d. no

State whether the triangles are similar. If so, write a similarity statement and the postulate or theorem you used.

71.

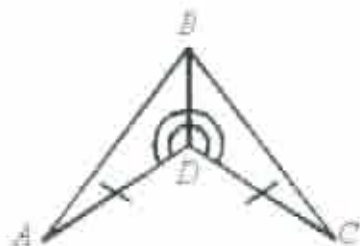
2.03



- a.  $\triangle ABC \sim \triangle MNO$ ; SSS  
b.  $\triangle ABC \sim \triangle MNO$ ; SAS  
c.  $\triangle ABC \sim \triangle MNO$ ; AA  
d. The triangles are not similar.

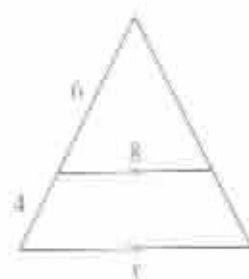
72.

2.03



- a.  $\triangle ADB \sim \triangle CDB$ ; SAS  
b.  $\triangle ADB \sim \triangle CDB$ ; SAS  
c.  $\triangle ADB \sim \triangle CDB$ ; SSS  
d. The triangles are not similar.

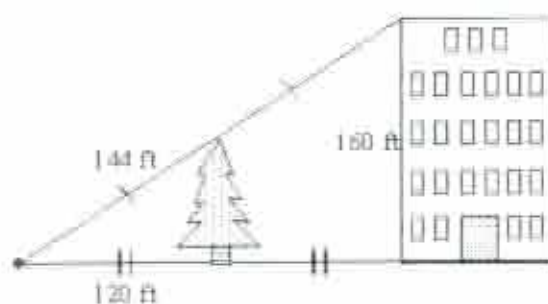
Explain why the triangles are similar. Then find the value of  $x$ .



Not drawn to scale

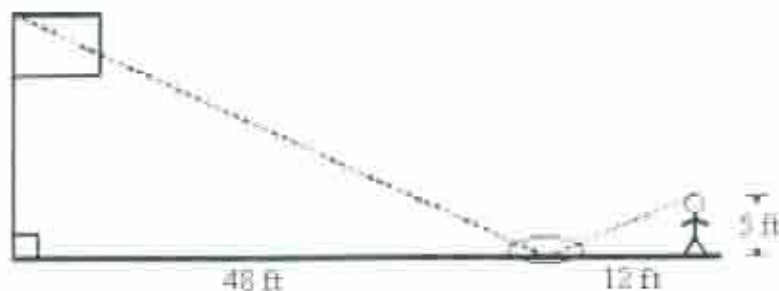
- a. SSS Postulate;  $5\frac{1}{3}$       c. SAS Postulate;  $13\frac{1}{3}$   
 b. AA Postulate;  $13\frac{1}{3}$       d. AA Postulate;  $5\frac{1}{3}$

74. Use the information in the diagram to determine the height of the tree to the nearest foot.



- a. 80 ft      b. 264 ft      c. 60 ft      d. 72 ft

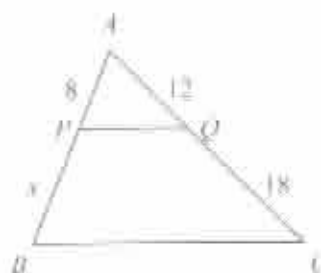
75. Michele wanted to measure the height of her school's flagpole. She placed a mirror on the ground 48 feet from the flagpole, then walked backwards until she was able to see the top of the pole in the mirror. Her eyes were 5 feet above the ground and she was 12 feet from the mirror. Using similar triangles, find the height of the flagpole to the nearest tenth of a foot.



- a. 20 ft      b. 38.4 ft      c. 55 ft      d. 25 ft

2.03

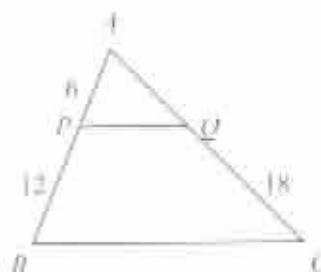
76. Use the Side-Splitter Theorem to find  $x$ , given that  $PQ \parallel BC$ .



- a. 12                      b. 6                      c. 20                      d. 24

2.03

77. Given:  $PQ \parallel BC$ . Find the length of  $AQ$ . The diagram is not drawn to scale.

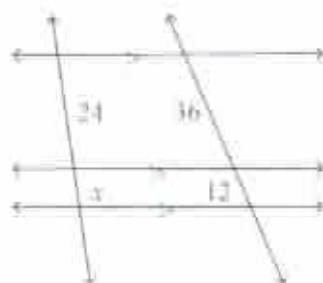


- a. 11                      b. 12                      c. 18                      d. 9

Solve for  $x$ .

2.03

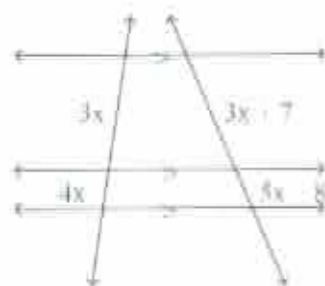
78



- a. 8                      b. 12                      c. 6                      d. 2

2,03

79.



a.  $\frac{52}{3}$

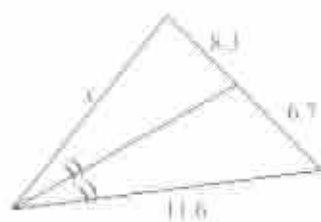
b.  $\frac{3}{4}$

c. 17

d.  $\frac{52}{7}$

2,03

80. Find  $x$  to the nearest tenth.



Not drawn to scale

a. 4.8

b. 14.4

c. 9.1

d. 1.7